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NEW DATA ON THE TRENTON ARGILLITE CULTURE[1]

By LESLIE SPIER

THIS paper presents new data relating to those finds at Trenton known to Abbott and Volk as the "argillite culture." These investigators report that three distinct cultures are associated with three strata of the terrace south of Trenton, the remains of the Delaware Indians with the present surface soil, the "argillite culture" with the yellow loam immediately beneath, and a paleolithic culture with the gravels below the yellow loam. Our data are from the yellow loam.

Our excavations in the yellow loam at the Abbott farm yielded about two thousand specimens. We find but few forms of artifacts among these, pitless hammerstones, and chipped stone implements of the arrow point and large blade types. The remainder of the specimens are chips and fragments of various materials, fragments of bone, and fire fractured pebbles. In sharp contrast with these are the remains of the Delaware in the surface soil above: pottery, bone, shell, and copper implements, polished and engraved stone objects, notched and grooved sinkers, pitted and pitless hammerstones, and arrow points and larger chipped blades. Again, while only a limited number of arrow point forms are found in the yellow loam, the form of the Delaware points varies widely. We recognize then, in agreement with Volk, that we have here a simple culture set over against one that is relatively complex. The identity of the "argillite culture" is therefore not to be confused with any other.

Not only is the distinction between these cultures definite and sharp, but our preliminary study in this direction has yielded no evidence that the culture represented in the yellow loam is not homogeneous. That is, we have found nothing that we may not refer to a single culture, nor have we found any differentiation in type corresponding to the vertical distribution of these artifacts.

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[1] Read before the American Anthropological Association at Washington, D. C., as a preliminary report on archeological explorations in New Jersey conducted by the American Museum of Natural History.

Excavations at the Abbott farm were begun in 1914 by Mr. Alanson Skinner. Two series of specimens were removed by two methods. The first of these, the result of careful troweling, showed that specimens were to be found in quantities in the yellow loam, and a tabulation of their positions showed a suggestive vertical arrangement. The second series from extended shallow trenches showed that the specimens were distributed throughout the site within a few feet of the surface soil. This work suggested the following as immediate objects for the work of 1915 which was undertaken by the writer:—

1. To determine whether the artifacts lay in more than one plane of deposition.
2. To determine if the artifacts lay in groups.
3. To determine if the artifacts in the yellow soil were always found distributed vertically in a characteristic manner.
4. To determine the relation of the artifacts to certain geological features, (*a*) red bands, (*b*) pebbles.

For this purpose the trenches were extended, excavation being carried below the specimen-bearing region through a barren region one foot in depth. Trenching proceeded by two methods: the bulk of the material was removed in levels four inches in depth and sifted, while sections of particular interest were carefully sliced away with a trowel. The depth of each specimen was recorded from an arbitrarily established plane, the plane of contact of the surface soil with the yellow loam.

We note that the specimens, with few exceptions, lay flat or with their long axes horizontal. In size they ranged up to hammerstones, and we note that no artifact was larger than the largest pebble or small boulder in the loam. The rarity of large artifacts and large boulders is strictly comparable.

We have indicated on the profile (fig. 22) the distribution of the specimens by figures representing the number of specimens found near the positions occupied by each figure. Beginning at the western end, it will be noted that only isolated specimens were found in the first 180 feet, east of this the mass of the specimens lie in a single plane at a grade of 1.5 percent to 2.0 percent for the first 400 feet, and roughly parallel to the surface for the remaining distance. This plane lies from 12 to 18 inches below the surface. To these data we must add that of the work of 1914 in Trenches 1 and 2, which is in entire agreement. (These trenches lie beyond the crest of the slope and therefore not in the plane of the profile, but they are nevertheless indicated at II and I respectively.)

On further examination we find that specimens do not occur in all sections of this plane, but that they lie in groups with isolated specimens between. The distribution of the specimens comprising a group is exactly what might be expected as a corollary of this fact. Tabulating the recorded positions for one group shown at III on the profile, we find the distribution as shown in Table 1.

These series are shown graphically in fig. 23. Here we note that the west-east arrangement is of the type found in chance groupings, a normal frequency distribution. On the other hand, the form of the north-south arrangement is not so

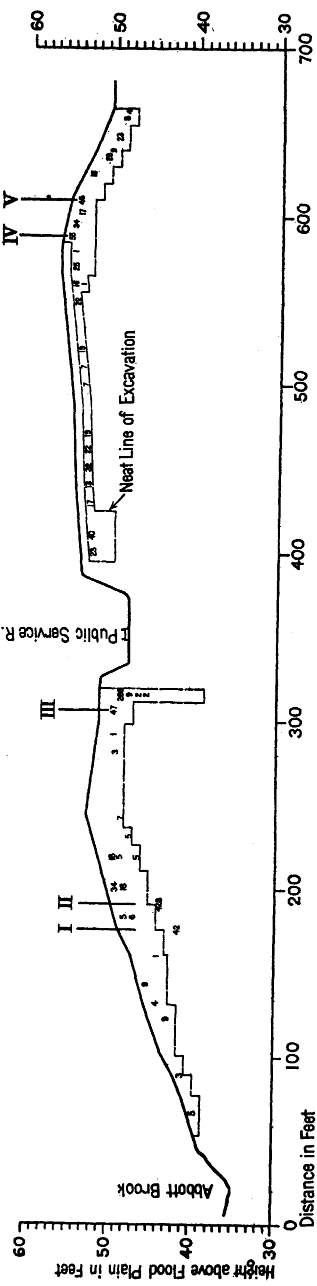

FIG. 22.—Profile of trenches B and C, looking north.

TABLE I.

From West to East

Distance from Trench A (feet):

	10′	.	9′	.	8′	.	7′	.	6′	.	5′	.	4′	.	3′	.	2′
Frequency:	0	1	1	2	4	2	3	4	4	5	6	3	3	2	3	2	1

From North to South

Distance from Trench wall (inches):

	27″	.	25″	.	.	.	.	20″	.	.	.	.	15″	.	.	.	.	10″	.	.	.	.	5″	.	.	.	.
Frequency:	1	1	3	2	2	0	3	2	0	2	1	0	2	1	0	1	2	3	1	1	3	0	2	2	1	2	0

(Continued)

Distance:	0″	.	.	.	.	5″	24″	34″	41″	48″
Frequency:	4	0	1	0	0	0	1	2	1	1

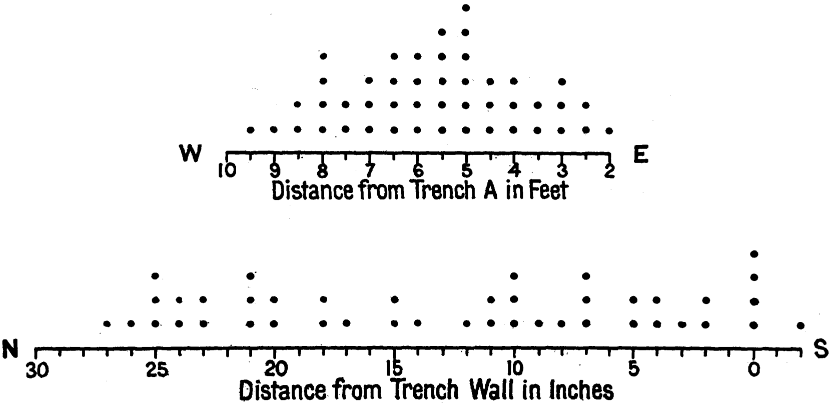

FIG. 23.—Horizontal distribution of group III.

clear. Compare these with the east-west distribution of a group in Trench 1 shown at II:—

Distance from E side of trench (inches):

	96″	87″	84″	82″	72″	62″	60″	54″	52″	48″	47″	42″	39″	35″	.	.	.	.	30″	.	.	.	.	25″
Frequency: Bone		.	.	.	.	.	.	.	.	.	.	.	.		.	.	.	.	1	3	2	3	.	2
Artifacts	1	2	2	1	3	1	2	1	1	1	1	2	1	1	.	.	2	1	1	.	1	2	.	1
Total	1	2	2	1	3	1	2	1	1	1	1	2	1	1	0	0	2	1	2	3	3	5	0	3

(Continued)

Frequency:	.	.	.	.	20″	.	.	.	.	15″	.	.	.	.	10″	.	.	.	.	5″	.	.	.	.	0″
Bone	2	1	2	1	2	.	3	1	2		10	.	.	3		3	3	3	1	5	.	2	3	.	
Artifacts	.	.	.	1	1	.	1	.	.		.	.	.	1		1	.	.	1		1	1	.	.	1
Total	2	1	2	2	3	0	4	1	2	0	1 0	0	0	4	0	4	3	3	2	5	1	3	3	0	1

Again in this series we find that the arrangement is that of a normal frequency distribution.

Turning to the vertical arrangement of specimens in these groups we find a characteristic distribution. Tabulating the number of specimens occurring at each inch of depth in the groups at I–V on the profile (fig. 22) the following series were obtained. For comparison with these, data of Volk and Mercer from Lalor field are tabulated. (E. Volk: Archaeology of the Delaware Valley: Papers of the Peabody Museum of Archaeology and Ethnology, vol. 5, Cambridge, Mass., 1911, p. 85 et seq. H. C. Mercer: A New Investigation of Man's Antiquity at Trenton: Proc. Amer. Assn. Adv. Sci., 1897, Salem, 1898, p. 370 et seq.) It must be noted that in both of Volk's series the frequency of positions mentioned in the text is represented, not the number of specimens.

Depth Below Plane of Contact (Inches.)	Frequencies								
	I	IIa Artifacts	IIb Bone	III	IV	V	Volk 1894	Volk 1897	Mercer 1897
0	..	1	..	..	..	..	..	..	..
1	..	0	1	..	..	..	..	..	..
2	1	1	0	..	..	1	..	..	2
3	2	1	2	..	1	3	1	1	1
4	2	6	1	..	7	1	9	3	1
5	3	0	4	..	5	3	9	6	0
6	0	1	0	..	9	14	13	4	6
7	4	4	5	..	5	14	7	4	1
8	4	6	9	..	8	5	15	6	4
9	1	4	6	..	1	1	7	4	0
10	0	2	2	2	5	0	11	5	3
11	4	3	3	0	4	2	6	4	0
12	1	6	5	4	6	0	15	7	6
13	0	0	4	1	4	0	2	2	0
14	2	1	4	2	..	0	3	2	1
15	0	1	0	4	..	0	1	2	2
16	0	1	1	1	..	1	1	2	2
17	0	1	2	5	..	0	..	2	0
18	1	0	0	2	..	0	..	2	0
19	..	0	1	4	..	1	..	2	1
20	..	1	1	2	..	..	..	3	1
21	..	0	1	5	..	..	..	3	..
22	..	0	0	4	..	..	..	1	..
23	..	0	0	3	..	..	..	..	..
24	..	2	0	4	..	..	..	..	..
25	..	..	0	1	..	..	..	..	..
26	..	..	0	1	..	..	..	..	..
27	..	..	0	2	..	..	..	..	..
28	..	..	0	..	..	..	..	..	..
29	..	..	1	..	..	..	..	..	..

These series are shown in graphic form in fig. 24.

An inspection of these series shows their similarity in range and manner of dispersion. The ranges are similar, varying from 13 to 21 inches (for if a random instance be omitted from Series II*b*, its range is 21 inches rather than 29 inches). In each series the position of maximum frequency is at the middle of the range, and the distribution is symmetrical about this point with the frequency of occurrence progressively less from the center to the extremes of the range. We recognize the close resemblance, if not identity, between the form of distribution common to these nine series and the typical frequency curve. We are to conclude then that in these groups there is a uniform manner of vertical distribution.

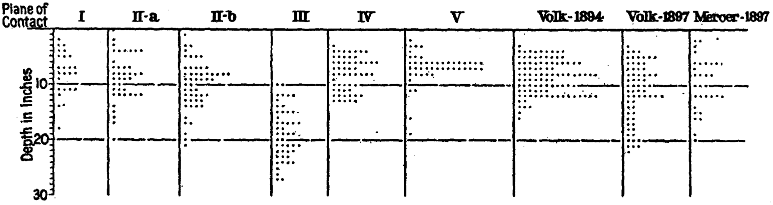

FIG. 24.—Vertical distribution of groups.

In view of the fact that the data from Lalor field resemble those from Abbott farm in indicating a unimodal vertical distribution, we would be inclined to expect that the specimens occur throughout the entire district in a single plane of deposition.

Having determined the distribution of the artifacts in a definite manner, let us consider their relations to other features of the yellow loam.

Artifacts were found in, above, and below the red bands which traverse the yellow loam. The relation between the sequence of the red bands and the uniform vertical distribution of the artifacts was found to be highly variable.

Artifacts were found among the pebbles in the loam. The walls of the trenches were examined and the vertical range of distribution of the pebbles was noted. In ten of the sixteen cases where pebbles and artifacts were noted at the same points, we found that their vertical ranges were either identical, or the range of the artifacts was included in that of the pebbles. To determine the manner of distribution of the pebbles and its relation to that of the artifacts, series were obtained at III and V on the profile (fig. 22). Tabulating the number of pebbles in each inch of depth below the plane of contact, and comparing corresponding data for the artifacts, we obtain the following series:—

Depth Below Plane of Contact (Inches)	Frequency			
	III		V	
	Artifacts	Pebbles	Artifacts	Pebbles
0	..	2	..	..
1	..	4	..	4
2	..	4	1	6
3	..	4	3	3
4	..	1	1	10
5	..	2	3	16
6	..	5	14	20
7	..	5	14	20
8	..	3	5	22
9	..	5	1	18
10	2	9	0	14
11	0	5	2	10
12	4	9	0	8
13	1	8	0	10
14	2	9	0	12
15	4	17	0	2
16	1	21	1	6
17	5	32	..	4
18	2	32	..	2
19	4	32	..	0
20	2	41	..	2
21	5	30	..	2
22	4	40	..	1
23	3	33	..	0
24	4	33	..	1
25	1	24	..	0
26	1	24	..	0
27	2	23	..	1
28	..	20	..	..
29	..	31	..	..
30	..	40	..	..
31	..	34	..	..
32	..	30	..	..
33	..	21	..	..
34	..	14	..	..
35	..	13	..	..
36	..	9	..	..
37	..	7	..	..
38	..	1	..	..
39	..	1	..	..
40	..	1	..	..
41	..	1	..	..

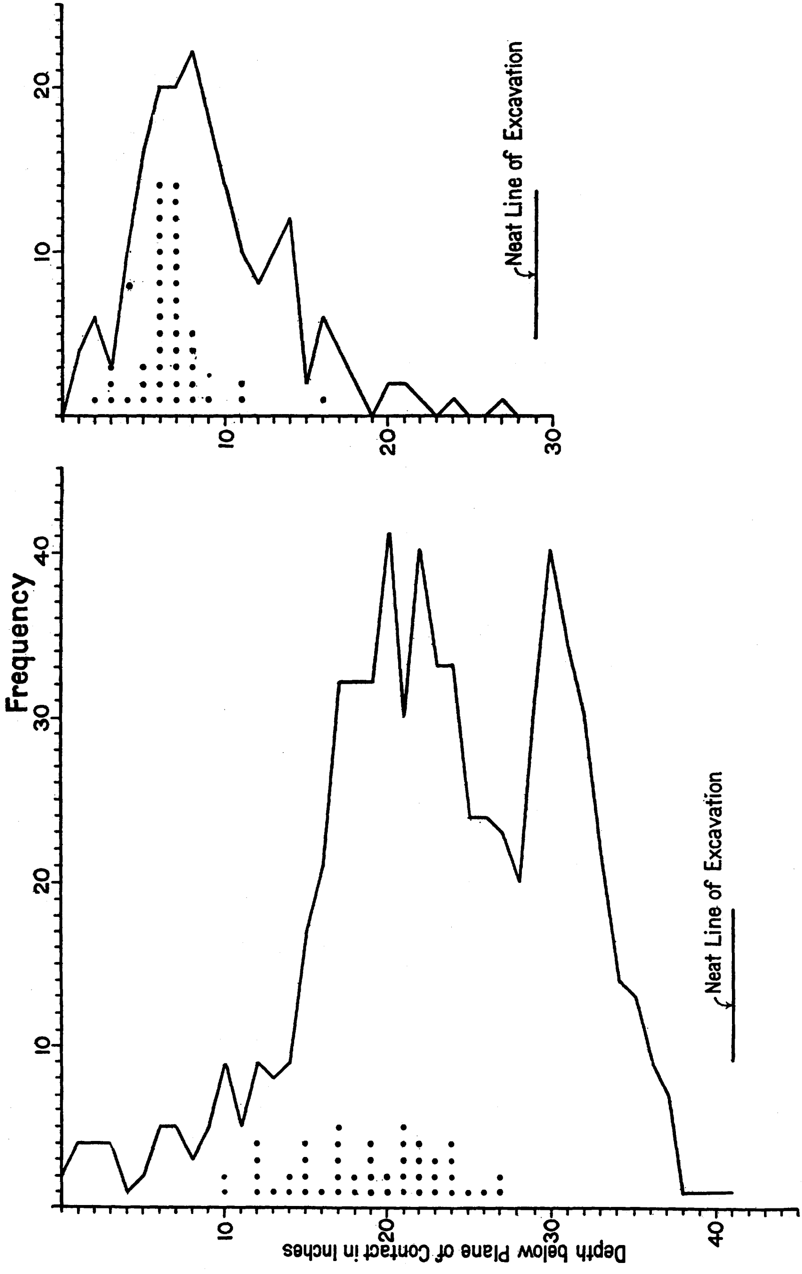

FIG. 25.—Vertical distribution of artifacts and pebbles of groups III and V. Artifacts = ...; Pebble, = ———.

These series are shown graphically in fig. 25. An inspection of the two pebble series shows their similarity and their close resemblance to the typical frequency curve. On comparing each with the corresponding artifact series, we note that the modal points occur at about the same depth, that the manner of distribution is identical, and that the range of dispersion of the artifact series, if not identical with that of the pebbles, falls within it. If we are to conclude that the pebble series are identical with the corresponding artifact series, it seems reasonable to regard both as components of a single series.

It seems possible to apply statistical methods for a further and detailed comparison of these data.

To summarize, these data may be interpreted as showing:

1. That the artifacts are culturally distinct from those of the Delaware.

2. That they lie throughout the site, and probably throughout the district, in groups forming a single plane in the upper part of of the yellow loam and roughly parallel to the surface.

3. That they have a characteristic vertical distribution.

4. That, while they bear no fixed relation to the red bands, their vertical distribution is probably identical with that of the pebbles.

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